UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,498	02/16/2006	Hanne Thorsoe	BJS-550-730	3495

23117 7590 11/13/2008
NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER	
BADR, HAMID R	
ART UNIT	PAPER NUMBER
1794	
MAIL DATE	DELIVERY MODE
11/13/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/568,498	THORSOE ET AL.	
	Examiner	Art Unit	
	HAMID R. BADR	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *53-111* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *53-111* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08). Paper No(s)/Mail Date *2/16/2006, 7/14/2006, 10/19/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 53-103, and 111 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamime et al. (1985, Yoghurt; Science and Technology; hereinafter R1) in view of Yamaguchi et al. (EP 0868 854; hereinafter R2) and Takahashi (EP 1 206 909; hereinafter R3).

3. R1 discloses processes for the production of fermented milks including yogurt, yogurt beverage, stirred yogurt, pasteurized yogurt, flavored yogurt, and yogurt beverage and drinking yogurt. The overall process is discussed on page 236 where the milk is standardized for fat content, the milk solids are fortified to 14-16% and sugar and or stabilizers are added. The yogurt base mixture is pre-warmed (50-60C), homogenized and heat treated (pasteurized) at 85C for 30 minutes, 90-95C for 5-10 minutes, or 120C for 3-5 seconds. The milk is cooled to incubation temperature. The incubation can be carried out at 42-45C (short incubation time, 2.5-3 hours, page 103, outline of the process, line 6) or at 30C (long incubation time, overnight or around 18 hours or until the desired acidity is reached, page 60, Fermentation Process). The mixture is then inoculated with starter culture (*Streptococcus thermophilus* and *Lactobacillus bulgaricus;* page 60, Fermentation Process). The yogurt product can be

prepared at set yogurt or stirred yogurt. The stirred yogurt may be mixed with fruits or synthetic flavor. The set yogurt may contain fruits (page 236, Fig. 5.1).

4. R1 teaches that the yogurt may be pasteurized for producing long life yogurt. Table 5.1 on page 237 gives multiple methods for the heat treatment of prepared yogurt.

5. R1 teaches of a process for the preparation of drinking yogurt (page 241-243). R1 discloses that in order to overcome the problem of whey separation, it is necessary to incorporate a stabilizer into the basic mix. A typical composition of a drinking yogurt may contain 0.27% stabilizer (page 242, bottom of page, the chemical composition). It is noted that depending on the level of milk solids, and the type of stabilizers, 0.02-2% by weight is used in fermented products.

6. R1 discloses that the drinking yogurt is heat treated i.e. pasteurized in order to prolong its keeping quality. (page 242, last line).

7. R1 teaches of fortification of milk solids. Different type of milk powder can be used to fortify the yogurt milk. Skim milk powder is used most widely. The dried ingredients are incorporated into the aqueous phase which could be whole milk, skim milk or water (page 111, (b) Addition of milk powder). Other types of protein forms e.g. casein powder (isolated protein) can be added to the yogurt base. (page 18, addition of casein powder).

8. R1 discloses the type of stabilizers which can be used in yogurt. Among the stabilizers/emulsifiers pectins (High molecular weight, HE), low methoxy pectins (High

molecular weight, LE), soy protein (vegetable protein) can be used (page 25-26, Table 2.9).

9. While R1 clearly teaches of using pectins (HE) and low methoxy pectins (LE) as stabilizers in the yogurt products, it is silent regarding the use of depolymerized (low molecular weight or hydrolyzed pectins) in yogurt products.

10. R2 discloses low molecular weight pectins having a low viscosity and a high solubility which can be used in foods and drinks at 0.01-50% by weight. (Abstract).

11. R2 discloses low molecular weight pectins containing 86-88% galacturonic acid (page 10, Table 4). A 5% solution of the pectin has a viscosity of about 16 cP. it is noted that the viscosity measurement is carried out at 25C. It is also noted that the viscosity of the depolymerized pectin solutions will depend on degree of polymerization. At various degrees of polymerization, viscosities in the range as presently claimed can be obtained. R2 discloses that pectins with molecular weights of 20000-80000 can be prepared . Therefore, one can change the molecular weight and thus the viscosity. The motivation for using low molecular weight pectins is to increase the stability of drinks.

12. It is noted that depolymerized pectin has a linear structure of galacuronic acid residues.

13. R2 is silent regarding the use of low molecular weight pectins in yogurt products.

14. R3 discloses stabilizers for acidic foods containing proteins. These stabilizers are pectins having low molecular weight and a viscosity of no more that 150 m.Pa.s (Abstract).

15. R3 teaches of incorporating low molecular weight pectins into acidic foods at greater than 0.4% by weight. The low molecular pectins have a viscosity of no greater than 150 mPa.s at 5% solution at 25C. [0011]. This is equivalent to 150 cP. The low molecular pectin preferably shows a viscosity of 20-90 mPa.s (20-90 cP) for a 5% solution at 25C [0021]. The upper limit for usage of the low molecular pectin is 5% [0023]

16. R3 discloses that a high methoxy pectin of at least 50% esterification (DE) is suitable when used as low molecular weight pectin. [0014].

17. R3 discloses that proteins in acidic milk beverages such as liquid yogurt, lactic acid bacteria beverages, fruit milk and the like are highly unstable at pH 3.8-5.3 [002]. The acidic foods which can take advantage of stabilizing effects of low molecular pectins are foods containing animal or vegetable proteins and include acidic protein beverages prepared by adding citrus juices or other juices, organic acids such as citric and lactic, inorganic acids, beverages containing soybean milk etc. [0025].

18. R3 uses a pectin with a DE of 71% for the preparation of low molecular weight pectin. [0027]. It is noted that pectins are usually used in the from of powder as presently claimed. It is obvious that either High esterified pectin (HE, DE >50%) or low esterified pectin (LE, DE<50%) can be depolymerized as disclosed by R3. It is also obvious that depending on the desired viscosity, texture and taste of the various fermented products, depolymerized pectin, HE depolymerized pectin, LE depolymerized pectin and combinations thereof can be used as taught by R1. Optimization of process conditions and the type of depolymerized pectins used in various product will depend on

the product, the pH of the product, concentration of calcium and magnesium ions, desired texture, taste and viscosity of the products. Such parameters can be optimized by those of skill in the art.

19. It is noted that amidated pectins can be prepared by reaction of ammonia and pectins. Therefore, depending on the process by which the pectin is de-esterified, amidated pectins may be resulted when ammonia is used as the de-esterification agent. This means that a regular high molecular weight pectin may have amide groups (reaction of galacturonic acid and ammonia). Depolymerizing such a pectin will yield amidated depolymerized (low-ester, low molecular weight) pectins which can be used as presently claimed. Amidation together with depolymerization process will further improve the solubility of pectins at lower temperatures.

20. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to follow the teachings of R1 and incorporate depolymerized pectins, as taught by R2 and R3, instead of the pectins taught by R1. One would do so to prepare fermented milk products with various viscosities, textures and palatability. Absent any evidence to contrary and based on the teachings of the combined references, there would be a reasonable expectation of success in preparing a fermented milk product containing depolymerized pectins.

21. Claims 93-95, 105-111 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gudnason et al. (US 4, 391, 830; hereinafter R4) in view of Takahashi (EP 1 206 909; hereinafter R3)

22. R4 teaches of incorporating the high methoxyl pectin to already prepared yogurt and dispersing and dissolving the pectin in the product. (Col. 4, lines 5-7).

23. R4 teaches of adding the pectin stabilizer into the yogurt product after the yogurt product has been prepared. (Examples 1 and 2).

24. R4 uses high molecular type pectin and for that reason, the pectin has to be dissolved in an aqueous solution and be added to the yogurt product as taught by R4. It is obvious that incorporation of depolymerizd pectin, being soluble at low temperatures, can be carried out by adding the solid material (powder) to the yogurt product as presently claimed.

25. R4 is silent regarding the addition of amidated and depolymerized pectins to the yogurt products.

26. R3 discloses stabilizers for acidic foods containing proteins. These stabilizers are pectins having low molecular weight and a viscosity of no more that 150 m.Pa.s (Abstract).

27. R3 teaches of incorporating low molecular weight pectins into acidic foods at greater than 0.4% by weight. The low molecular pectins have a viscosity of no greater than 150 mPa.s at 5% solution at 25C. [0011]. This is equivalent to 150 cP. The low molecular pectin preferably shows a viscosity of 20-90 mPa.s (20-90 cP) for a 5% solution at 25C [0021]. The upper limit for usage of the low molecular pectin is 5% [0023]

28. R3 discloses that a high methoxy pectin of at least 50% esterification (DE) is suitable when used as low molecular weight pectin. [0014].

29. R3 discloses that proteins in acidic milk beverages such as liquid yogurt, lactic acid bacteria beverages, fruit milk and the like are highly unstable at pH 3.8-5.3 [002]. The acidic foods which can take advantage of stabilizing effects of low molecular pectins are foods containing animal or vegetable proteins and include acidic protein beverages prepared by adding citrus juices or other juices, organic acids such as citric and lactic, inorganic acids, beverages containing soybean milk etc. [0025].

30. R3 uses a pectin with a DE of 71% for the preparation of low molecular weight pectin. [0027]. It is noted that pectins are usually used in the from of powder as presently claimed. It is obvious that either High esterified pectin (HE, DE >50%) or low esterified pectin (LE, DE<50%) can be depolymerized as disclosed by R3. It is also obvious that depending on the desired viscosity, texture and taste of the various fermented products, depolymerized pectin, HE depolymerized pectin, LE depolymerized pectin and combinations thereof can be used as taught by R1. Optimization of process conditions and the type of depolymerized pectins used in various product will depend on the product, the pH of the product, concentration of calcium and magnesium ions, desired texture, taste and viscosity of the products. Such parameters can be optimized by those of skill in the art.

31. It is noted that amidated pectins can be prepared by reaction of ammonia and pectins. Therefore, depending on the process by which the pectin is de-esterified, amidated pectins may be resulted when ammonia is used as the de-esterification agent. This means that a regular high molecular weight pectin can be de-esterified using ammonia and consequently be converted to low-ester pectin. Depolymerizing such a

pectin will yield amidated depolymerized pectins (low-ester, low molecular weight) which can be used as presently claimed. Amidation together with depolymerization process will further improve the solubility of pectins at lower temperatures so that their direct addition to fermented milk products can be readily carried out.

32. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to follow the teachings of R4 and incorporate amidated depolymerized pectins , as taught by R3, instead of the high molecular weight pectins. One would do so to prepare fermented milk products with various viscosities, textures and palatability in a process where the pectin can be added directly to the fermented milk product. Absent any evidence to contrary and based on the teachings of the combined references, there would be a reasonable expectation of success in preparing a fermented milk product containing depolymerized pectins.

Conclusion

33. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The X references on the search report have been considered and are not relevant against the present claims.

34. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HAMID R. BADR whose telephone number is (571)270-3455. The examiner can normally be reached on M-T 5:00 to 3:30 (Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on (571) 272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hamid R Badr
Examiner
Art Unit 1794

/Callie E. Shosho/
Supervisory Patent Examiner, Art Unit 1794